

AMENDMENTS TO THE DRAWINGS

Please insert the attached six (6) Replacement Sheets of drawings for the originally-filed eight (8) sheet of drawings. The Replacement Sheets do not include Figure 10 and Figure 10 (Continued) of the original drawings. Also attached are eight (8) Annotated Sheets showing the changes (deleting Figure 10 and Figure 10 (Continued)) in the Replacement Sheets. No new matter has been added.

REMARKS

Reconsideration is requested.

The specification has been amended to include the attached Sequence Listing. The attached paper and computer readable copies of the Sequence Listing are the same. No new matter has been added. The specification has been amended in page 14 and in the description of Figure 1 to include sequence identifiers, as required by the Examiner. No new matter has been added. Withdrawal of the objection to the specification is requested.

The figures have been revised to delete Figure 10 and Figure 10 (Continued) of the originally-filed drawings, as suggested by the Examiner to obviate the objection to the drawings. No new matter has been added. Withdrawal of the objection to the drawings is requested.

Claims 1 and 2 are pending. Claims 3-30 have been canceled, without prejudice, to advance prosecution. Claims 4-30 have been asserted by the Examiner to allegedly define eight (8) separately patentable inventions as detailed in the Office Action of July 10, 2007.

The Section 101 rejection of claims 1 and 2 is obviated by the above amendments. Withdrawal of the rejection is requested.

The Section 112, second paragraph, rejection of claim 1 is believed to be obviated by the amended recitation of claim 1 wherein the recited functions are as compared to a control plant. Support for the amendment is believed to exist, for example, in the disclosure at page 36, line 8 and page 6, lines 4-5. The control plant of

the claims will be appreciated by one of ordinary skill in the art to be a plant which does not include the isolated nucleic acid encoding the plant class-2 non-symbiotic haemoglobin of the claims. The amendment is further submitted to obviate the Section 112, second paragraph, rejection of claims 1 and 2 stated in the paragraph spanning pages 7-8 of the Office Action dated October 1, 2007. The Section 112, second paragraph, rejection of claim 3 is moot in view of the above amendments. Withdrawal of the Section 112, second paragraph, rejection of claims 1-3 is requested.

The Section 112, first paragraph "enablement", rejection of claims 1-3 is believed to be obviated by the above amendments. Withdrawal of the "enablement" rejection is requested.

The Section 112, first paragraph "written description", rejection of claims 1-3 is believed to be obviated by the above amendments. The Examiner appears to appreciate on page 14 of the Office Action dated October 1, 2007, that the "specification describes increased growth rate and large inflorescence function of SEQ ID NO:4 when expressed in a transgenic plant..... The only species described in the specification is SEQ ID NO:3, which encodes SEQ ID NO:4." Withdrawal of the "written description" rejection is requested.

The Section 102 rejection of claims 1-3 over Alexandrov (EP 1033405) "taken with the evidence of" Trevaskis (PNAS, 94:12230-122230, 1997, is traversed. Reconsideration and withdrawal of the rejection are requested in view of the following distinguishing comments.

The Examiner is understood to believe that Alexandrov discloses a method of producing a transgenic plant expressing increased levels of transgenic protein, comprising transformation of the plant with an expression cassette comprising the nucleic acid of SEQ ID NO: 44959, which is allegedly identical to SEQ ID NO: 4.

The applicants submit, with due respect to the Examiner however, that Alexandrov et al. disclose over 80000 sequences and on page 328, a list of promoter types is provided for upregulating or downregulating expression of a nucleic acid that is operably linked thereto, covering various expression patterns. However the cited art does not disclose an expression cassette where the nucleic acid molecule encoding SEQ ID NO: 44959 is combined with a promoter for increasing expression of a class-2 non-symbiotic haemoglobin, as required by the claims. There is no mention of altered plant growth characteristics (that is increased yield, increased biomass, altered architecture or altered cell division) upon transformation of a plant with such an expression cassette. Haemoglobin may be described in paragraphs [0786] and [0787] but no guidance is provided for using haemoglobin in altering plant growth characteristics.

As the cited art is not believed to teach each and every aspect of the claimed invention, withdrawal of the Section 102 rejection is requested.

The claims are submitted to be in condition for allowance and a Notice to that effect is requested. The Examiner is requested to contact the undersigned, preferably by telephone, in the event anything further is required in this regard.

MULET SALORT et al.
Appl. No. 10/551,699
Atty. Ref.: 4982-4
Amendment
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Respectfully submitted,

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Name: at	Len: 162	Check: 5339	Weight: 1.00
Name: bn	Len: 162	Check: 8426	Weight: 1.00
Name: bv	Len: 162	Check: 6644	Weight: 1.00
Name: gh	Len: 162	Check: 7625	Weight: 1.00
Name: le	Len: 162	Check: 951	Weight: 1.00
Name: cg	Len: 162	Check: 1715	Weight: 1.00

//

	1		50
at	MGEIGFTEKQ	EALVKESWEI	LKQDIPKYSI HFFSQILEIA PAAKGLFSFL
bn	mgeivftekq	ealvkeswei	lkqdiipkysl hffsqileia paakdmfsfl
bv	---MIFTEKQ	EALVKESWDI	MKQNIPEYSL RFFSILEIA PAAKNMFSFL
gh	---mgftekq	eglvkeswev	lkqdiiphsil rffsileia pgaknmfsfl
le	---mgftdkq	ealvrdswef	mkqdiipqlsl rffsileia pvaknmfsfl
cg	---maltekq	eallkqswef	lkqniipahsl rlfalileaa peskyvvsfl

	51		100
at	RDSDEVPHNN	PKLKAHAVKV	FMTCEIAIQ LREEGKVVA DTTILQYLSGI
bn	rdtdevphnn	pklkahavkv	fkmctetaiq lrekgkvva dttlqylgsv
bv	RDSEVPQNN	PKLKAHAIVK	FMTCEIAIQ LREKGEVVG ETTILKYLGA
gh	resseipqnn	pklkahavkv	fkmctesiaq lrekgvvva dttlkylgtv
le	kdsdelppenn	pklkahavkv	fkmctesiaq lrekgvvvg ettlkylgsi
cg	kdsneipenn	pklkahaavi	fkcticesate lrqkghavvd nntlhrigsi

	101		150
at	HLKSGVIDPH	FEVVKAEALLR	TLKEGLG.EK YNEEVEGAW S QAYDHLALAI
bn	hfksgvidph	fevvkealvr	tlkeglg.ek yneevegaws kaydhlalal
bv	HLKMGVIDPH	FEVVKQALLR	TIERASG.DK WSEELKCAWS VAYDHLAAAI
gh	hvksgvkdph	fevvkeallr	tieraalgeek wneemknaw eaydqlaeal
le	hlktrvadph	fevvkeallr	tvkeatg.nk wkdemkaws eaydqlasal
cg	hlnknitdph	fevmkgallg	tikeai.ken wsdemgcawt eaynqlvati

	151	162
at	KTEMKQES-	--
bn	kaemkqedsq	kp
bv	KAEMKE+---	--
gh	kaemknihdc	ta
le	kaemhaeaa	--
cg	kaemke----	--

FIGURE 1

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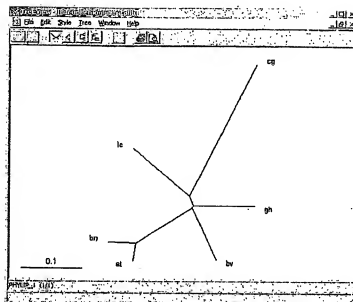


FIGURE 1 (continued)



FIGURE 2

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FIGURE 3

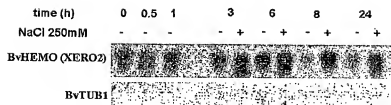


FIGURE 4

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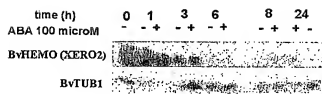


FIGURE 5

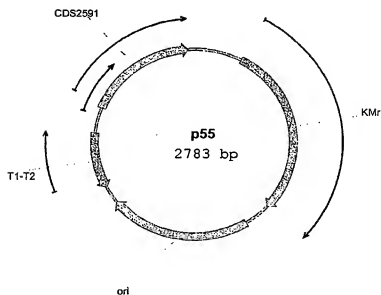


FIGURE 6

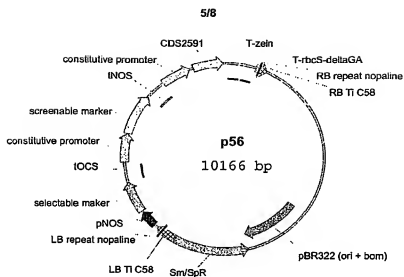


FIGURE 7

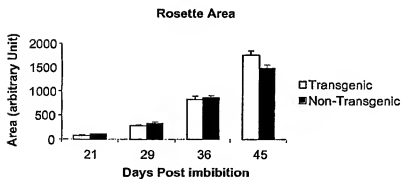


FIGURE 8

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FIGURE 9

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SEQ ID NO 1: Xero2 cDNA

tacaascccaaaatttaagctattaataacacctttctctgtcatttttctgtgtcccaatt
gttctcttttcttttaaatataaacaacaaactatgaccttttacagagaaagatgaaggttgg
aaaagaatcatgggatataatgaagcaaaatataccagaatacacgcttcggtttctccca
taattattggaattgtctccagcagccaaaatatgtctctatttttaagggttcagaggaa
gttccacagaataatcccaagctgaaagctcatgcaatcaaggtttttaaaagacatgtga
atcagccattcaacttcgagaaaaaggtgaagtggtgttggagagactactttaaatt
tggagagctatccatttgaagaatggagtgatgatacccattttgggtgtgaaacaagca
ttattgagaaccatagaagagcagtggtgtgcaaatggagtgaaagtgaagtgtgcttg
gagtggtgctatgatcacttagctgcagccatacaagctgagatgggaatagtgact
agttctcagtcgccaaaaagtattactctaaaaatttgaataaattctctattgttttga
ggggaaattattgttattgttattctgactcactattttatcttagtgacttgatgggt
ctttttctgacctattattgattagcaagaaggaatcaaatcataattattggttaac
catgtaattagtgcatattaatgtgtgataaaccttggtgatttgtaccttattgcaaat
taasataaatctccctcggtctttcattttaaaaaaaataaaaaa

SEQ ID NO 2: Xero2 deduced protein sequence

MTFTKDEALVKESWDIMKQNIPEYSLRFFSIITAPAAKNMFSFLRDSEEVQNPNFKLKA
HAIKVFMTCESAIQLRENGEVVVGETLKYIQLHLKNGVIDPHFEVVKQALLRTIEASG
DKWSEELKCAWSVAYDHLAAIKNAEMKE

SEQ ID NO3: *Arabidopsis thaliana* class 2 non-symbiotic hemoglobin (GLB2), cDNA

attgaataccatataratagatcacacagcatataaacacacaaatattcggtgttttt
caaacgttgagagaaaaagaaagagagaagatgggagagattgggtttacagagaaagca
agaagcttgggtgaaggatctgggagatactgaacaagacatccccaaatacagccttc
acttctctcacagatactgagatagcaccagcagcaaaaggtctgttctcttccaaaga
gactcagatgaagtccttcacaacatccctaaactcaagctcatgctgttaagctcttcaa
gatgacatggaacaacacatcacagctgagggaggaaggaaggtggtagtggtctgacacaa
ccctccaatattagctcaattcatctcaaaagcgggtattgacccctcacttcgaggtg
tggaagaagctttttaaggacattgaagaaggggttggggagaaatacaatgaagaagt
ggaaggtgcttgggtcgaagcttatgatcacttggcttagccatcaagaccgagatgaac
aagaagagctcaaaacccattgatcattgggtatcgcatcacatgaatctatccacata
catgatcacctatacgtgttctgtgtgtactatgtgctctctgactttctacagttc
actattttttataaagaaggtacttggctcatcattaggggagatcagtgatactgatt
ctctctgattgtttattcgtgagaaatatcatggtttgaagttatttattttcacagatgg
atgttctgctggggtcatttacaactcattctacaataattttactcttc

SEQ ID NO 4: *Arabidopsis thaliana* class 2 non-symbiotic hemoglobin (GLB2), deduced protein sequence

SEIGFTKQDALVKESWELKQDIPKYSIHFFSQILEIAPAAKGLFSFLRDSDEVPHNPK
LKAHAVKFMTCESAIQLRKEGQVVVADTLTQLGSIHLKSGVIDPHFEVVKALLRLTKE
GLGEKYNSEVGAWSQAYDHLAIAIKTEMKQES

FIGURE 10

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SEQ ID NO 17: Brassica napus class 2 non-symbiotic hemoglobin (GLB2) cDNA sequence

atgggagagattgtgtttacgggagaagcaagaagcttttggtgaaggagctcttggagatact
aaagcaagatattcccaaatcacgttcttctctcacagatactggatagcaccag
cagcaaaagacatgtttctcttctcaagacacagatgaagtcctctccacaatcctaaa
ctcaaaagctcatgctgttaagttcttcaagatgacatgtgagacagcctacagctgagga
gaaaggaaaggtagtggtggctgacacaacccccaactctgggcttctgttcatttcaaga
gcggtgttcttgatccttactttgaggtgggtgaaaggagcatttctgaggacactgaaagaa
gggttgggggagaagtacaatgagaagtgagaaggacttgggtcaaggcttatgatcactt
ggcttagccattaaaggccgagatgaacaagaagactcaaaaacccctaa

SEQ ID NO 18: Brassica napus class 2 non-symbiotic hemoglobin (GLB2), deduced protein sequence

MGEIVFTEKQALVKESNEILKQDIPKYSLHFFSLLEIAPAKDMFSFLRDTDEVPHNNPK
LKAIHAVKVKMTCETAIQLREKGRVVDITILGLSVHFKSGVLDPFHEVVKALVRIIKE
GLGEKYNEEVEGAMSKAYDHLALAIKAKNGQDSQKP

SEQ ID NO 19: primer prxm0545

ggggaccactttgtacagaaagctctgtcaaatgatcaatagggtttta

SEQ ID NO 20: primer prxm06122

ggggacaagtttgtacaaaaagcaggcttaaacagtgagagaaaaagaagagaga

SEQ ID NO 21: primer prxm05447

ggggacaagtttgtacaaaaagcaggcttaaacaatggctctctgtggaggata

SEQ ID NO 22: primer prxm05448

ggggaccactttgtacagaagagctgggtgatcatggaggtggagcag

SEQ ID NO 23: primer prxm06021

ggggactgtttgtacaaaaagcaggcttaaacaatgacttttcagagaaagatgaagct
tt

SEQ ID NO 24: primer prxm06022

ggggaccactttgtacagaagagctgggtctaagctacctattcttcatctcagc

FIGURE 16 (continued)